



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.             | CONFIRMATION NO.       |
|---|-------------|----------------------|---------------------------------|------------------------|
| 10/718,666  | 11/24/2003  | Ming-Cheng Chang     | CHAN3232/EM                     | 1606                   |
| 23364 7590 04/30/2007<br>BACON & THOMAS, PLLC<br>625 SLATERS LANE<br>FOURTH FLOOR<br>ALEXANDRIA, VA 22314 |             |                      | EXAMINER<br>ARENA, ANDREW OWENS |                        |
|   |             |                      | ART UNIT<br>2811                | PAPER NUMBER           |
|   |             |                      | MAIL DATE<br>04/30/2007         | DELIVERY MODE<br>PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/718,666

Applicant(s)

CHANG, MING-CHENG

Examiner

Andrew O. Arena

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 February 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Drawings***

Fig 2 is objected to because the two central reference characters 18c should be underlined. See MPEP § 608.02(V)(q).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. See MPEP § 608.02(p).

### ***Claim Objections***

Claim 4 is objected to because the recitation "work lines" (ln 7) is a misprint and should recite "word lines".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Perng (US 6,090,661), already of record.

**Re claim 4**, Perng discloses a semiconductor (col 1 ln 9, col 2 ln 49) memory device (col 5 ln 6), comprising (Fig 1A-1B):

a plurality of bit lines that are adjacent to each other (col 6 ln 15-19);

a plurality of active areas, of which a first active area (17) is connected with a bit line and a second active area (49) is connected with another bit line (col 6 ln 15-19), said two bit lines being adjacent each other, and each active area having two cells (17 having 3 and 5, 49 having 13 and 15; col 5 ln 15-18, col 6 ln 8-11);

a plurality of word lines (41, 43, 45), each word line being connected with one corresponding (interpreted - within one given active area) cell (col 6 ln 2-5);

a plurality of deep trenches (19, 21; col 5 ln 35-38, col 6 ln 35), one of which (21) communicates (interchanges electrical information, alternatively, joins or connects; see attached dictionary definition, term not defined in the specification e.g., pg 3 ln 9, given plain meaning as per MPEP § 2111) with one of the two cells (5) located in the first active area (17) and one of the two cells (13) located in the second active area (49), so as to measure leakage current between the first and second areas (the manner – to measure leakage current – in which the claimed apparatus is intended to be used does not patentably distinguish from Perng, which teaches all the structural limitations of the claim. See MPEP § 2114. Furthermore, it is not clear that this limitation is even enabled by the specification, but as best as can be ascertained therefrom, Perng is capable of leakage current easily measured through word line 43, for instance the bit line contacts of col 6 ln 15-19 are used to measure the leakage currents from the deep trench 21 to the substrate, etc.... as recited in applicants specification at pg 3 ln 12-17).

**Re claim 5**, Perng discloses two different word lines (41 and 43) respectively control two different cells (3 and 5) in one active area (5; col 6 ln 2-5).

### ***Response to Arguments***

Applicant's arguments filed 02/02/2007 have been considered but are moot in view of the new ground of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 2811

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew O. Arena whose telephone number is 571-272-5976. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard T. Elms can be reached on 571- 272-1869. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*am o. an*

Andrew O Arena  
24 April 2007

*Sara Crane*  
Sara Crane  
Primary Examiner